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(54) Title: METHOD AND SYSTEM FOR PLACING A TELEPHONE CALL

(57) Abstract: A method for placing a telephone call, comprising the step of a transmitting section of a telephone apparatus establishing a connection with a given receiving section of a telephone apparatus, and the further steps of storing audiovisual information (320, 323, 325, 328) in a memory (140) of the transmitting section, the transmitting section transferring predetermined calling information (300), comprising audiovisual information (320, 323, 325, 328), to the receiving section, and converting the audiovisual information (320, 323, 325, 328) in the receiving section into signals perceptible by the senses, and the step of the receiving section converting the audiovisual information (320, 323, 325, 328) into signals perceptible by the senses during the transfer of the calling information (320, 323, 325, 328) by the transmitting section.

Title: Method and system for placing a telephone call.

This invention relates to a method for placing a telephone call, comprising the step of a transmitting section of a telephone apparatus establishing a connection with a given receiving section of a telephone apparatus, as well as to a telephone system comprising at least one first 5 telephone apparatus provided with at least one transmitting section and at least one second telephone apparatus provided with at least one receiving section, while the at least one transmitting section and the at least one receiving section are provided with respective communication means arranged for establishing a telephone connection.

Such systems are known from practice for, for instance, cellular telephones. These cellular telephones are provided with a number of different acoustic alerting signals, such as, for instance, beep signals of a different tone, which are produced by the telephone when a call is being placed. The cellular telephone is further provided with a memory in which 10 the user has entered a number of telephone numbers, which the user has coupled to a particular alerting signal. If the cellular telephone is called by a telephone associated with one of the stored telephone numbers, the cellular telephone produces the alerting signal associated with the number 15 in question. Thus, the user can hear by the alerting signal by whom he is being called.

A disadvantage of this system, however, is that the number of available different alerting signals is limited and that entering the telephone numbers and the associated alerting signals is laborious, in particular if a given caller utilizes several telephones. Another 20 disadvantage is that per telephone number only a single alerting signal can be indicated; consequently, this system does not enable a distinction to be obtained if several users utilize a single telephone number.

The object of the invention is to provide a method and a system which remove these disadvantages. To that end, the invention provides a 25 method of the type mentioned above, characterized by the steps of storing audiovisual information in a memory of the transmitting section; the transmitting section transferring predetermined calling information comprising audiovisual information to the receiving section; and converting

the audiovisual information in the receiving section into signals perceptible by the senses.

The invention further provides a telephone call system of the type indicated above, characterized in that the at least one first telephone apparatus is provided with an audio memory containing audio information and that the communication means of the at least one first telephone apparatus are arranged for transferring predetermined calling information, comprising at least audiovisual information, to the at least one second telephone apparatus.

According to the invention, the transmitter passes audiovisual information to the receiver, so that the receiving party is in a position to listen to and/or look at this audiovisual information. Of advantage here is that the receiving party himself does not need to perform any operation to listen to or look at the audiovisual information and that the transmitting party can determine the content of the audiovisual information. What is thus achieved is that the transmitting party can better communicate his identity to the receiving party and that the receiving party is in a better position to decide whether or not to take the call. Different persons utilizing the same telephone apparatus can each use their own audiovisual information, so that, also in this application according to the invention, despite the same telephone apparatus and telephone number, the receiving party is enabled to discriminate between different users.

The invention is further embodied in a computer program arranged for carrying out the method according to the invention, as well as to a data carrier which is provided with a computer program according to the invention in a computer-readable form.

The invention will be further elucidated on the basis of a detailed description of an exemplary embodiment of the invention, with reference to the drawing. In the drawing:

Fig. 1 schematically shows a transmitter according to the invention,

Fig. 2 schematically shows a receiver according to the invention, and

Fig. 3 schematically shows a calling file according to the invention.

In the following, according to the invention, audiovisual information is understood to mean information which represents audio

information, visual information, or a combination of visual and audio information. Visual information is understood to encompass both still images (such as, for instance, logos, devices, and photos) and moving images (such as, for instance, film).

5 Fig. 1 shows an exemplary embodiment of a cellular telephone 100 according to the invention, which, in this example, functions as transmitter. This cellular telephone 100 is provided with a communication unit 110, arranged for establishing a connection with another telephone. The communication unit 110 is provided with an antenna 115. Such 10 communication units for cellular telephones are known from practice, so that, for the sake of brevity, a detailed description can be omitted.

15 In this exemplary embodiment, by way of example, audio information is used for the call message. The invention is not limited to this exemplary embodiment and the invention can also be used with a call message with audiovisual information such as audio information, visual information or a combination of visual and audio information.

20 The telephone 100 is further provided with a control unit 120, arranged for controlling the operation of the telephone 100 and connected with the communication unit 110. The control unit 120 is further connected with a key panel 130, which can be operated by a user for giving commands to the control unit 120. The telephone 100 is further provided with an audio memory 140 which is connected with the control unit 120. The audio memory 140 is arranged for storing audio information. The telephone 100 is provided with a number memory 150, in which home address data, such as 25 name, street name and number, and telephone number can be stored by a user. The number memory 150 is connected with the control unit 120.

30 The telephone 100 is provided with a recording device 160, which is provided with a microphone 165. This microphone 165 is positioned such that voice and/or other audio information of a user of the telephone 100 can be captured for subsequent relay of the electrical signals generated thereby to the recording device 160. In this example, the recording device 160 is arranged, through sampling, to convert the sounds captured by the microphone 165 and converted into electrical signals, into digital form. Thus, a computer file with audio information is created. Such devices for 35 recording sound in digital form are known from practice. In an advantageous variant embodiment of the example, for the microphone 165,

use can be made of the microphone conventionally present in a telephone apparatus.

The telephone 100 is further provided with an input unit 170, which is connected with the communication unit 110. The input unit 170 is 5 arranged for receiving audiovisual data from a source such as, for instance, a CD player or mini disk player. To that end, the input unit 170 is provided with inputs 175, arranged for connecting audio sources, for instance via an analog or digital line connection. The audio information inputted via the input unit 170 is stored in the audio memory 140 via the communication 10 unit 110 and the control unit 120. Via the inputs 175 or via the communication means 110, the input unit 170 can establish a connection with a network, such as, for instance, the Internet, to download audio information from the network and to store it in the audio memory 140. The input unit 170 can also be arranged for receiving visual information.

Fig. 2 shows an exemplary embodiment of a second cellular telephone 200 according to the invention, which, in this example, functions as receiver for the telephone 100. The cellular telephone 200 is provided with a communication unit 210, arranged for establishing a connection with another telephone, in this example the telephone 100. The communication 20 unit 210 is provided with an antenna 215. Such communication units for cellular telephones are known from practice, so that, for the sake of brevity, a detailed description can be omitted.

The telephone 200 is further provided with a control unit 220, arranged for controlling the operation of the telephone 200 and connected 25 with the communication unit 210. The control unit 220 is further connected with a key panel 230, which can be operated by a user for giving commands to the control unit 220. The telephone 200 is further provided with a cache memory 260, which is connected with the control unit 220. The cache memory 260 is arranged for storing audio information and identification 30 data associated with audio information.

The telephone 200 is further provided with reproduction means for converting information into signals sensorially perceptible by a user, in this example in the form of a loudspeaker unit 240, which is provided with a 35 loudspeaker 245. The loudspeaker unit 240 is connected with the control unit 220 and is arranged to receive audio information in digital form from the control unit 220 and to convert this information into electrical signals

which can be converted into sound by the loudspeaker 245. Such systems for acoustic reproduction of digital audio information are known from practice, so that a detailed description thereof can be omitted. In case the calling information also comprises visual information, the reproduction means can 5 be provided with a visual converter such as, for instance, a light or display. In particular, use can then be made of a display of a cellular telephone.

In the following, a practical example of the invention will be described. A user of the telephone 100 records a call message by way of the microphone 165 and the recording device 160. The call message can be 10 formed, for instance, by spoken word, such as, for instance, the name of the user, or, for instance, music, such as a recognition melody. If desired, the call message can be provided with graphic information such as, for instance, stationary or moving images. The call message is converted into digital 15 audio data by the recording device 160 and stored via the control unit 120 in the audio memory 140. According to the invention, any storage format for audio data can be utilized, for instance the MP3, MPEG or WAVE format. The invention also provides for the use of formats for storing musical data such as, for instance, the MIDI format. If according to the invention visual 20 data are also included in the call message, in a corresponding manner any digital storage format suitable for the purpose can be used, such as, for instance, JPEG, MPEG, and GIF.

In addition, the invention provides for the reproduction of audiovisual information through reference data, such as, for instance, hyperlinks, the hyperlink comprising data through which the indicated 25 audiovisual information can be found. As a result, the associated claim on the storage capacity of the telephone is only small. If desired, the user, via the input unit 170, can also derive audiovisual information from a different source, for instance via a CD player or the Internet.

Next, the user, by means of the key panel 130, selects a telephone 30 number of a telephone with which the user wishes to establish communication. To that end, the user can specify a telephone number directly to the control unit 120 or select a number from the data stored in the number memory 150. Thereafter the user indicates which call message he wishes to use in making the connection. For this purpose, the user can 35 choose from audio data stored in the audio memory 140. If desired, the user can indicate in the number memory 150 a particular choice of a call message

in association with a particular number, so that this call message is used every time with the number in question.

On the basis of the telephone number selected by the user and the call message selected by the user, the control unit 120 determines the calling information, for instance in the form of a calling file 300 as shown in Fig. 3. The calling file 300 comprises identification data 310 and audio data 320. The identification data 310 can comprise a unique identification number to indicate the audio data 320, a sign for indicating the storage format used for the audio data 320, as well as an identifier for the user.

The communication unit 110 proceeds to seek communication with the receiving telephone 200 selected by the user. The receiver 200 is arranged such that making the connection takes place without the receiving party needing to take action, for instance picking up the telephone. After the connection has been established between the respective communication units 110 and 210, the control unit 120 transmits the calling file 300 via the communication units 110, 210 to the control unit 220. The control unit 220 reads the identification data 310 of the calling file 300 and stores it in the cache memory 260. The control unit 220 proceeds to read the audio data 320 of the calling file 300 and likewise stores it in the cache memory 260 together with the associated identification data 310. Next, the audio data 320 are passed on to the loudspeaker unit 240 which converts the audio data into acoustic signals; thus the receiving party can hear the call message of the transmitting party. If desired, the recipient, for instance because he does not want to be disturbed, can set the control unit 220 to reproduce acoustic signals only after a command from the recipient, such as, for instance, pressing a key on the panel 230. In a further variant embodiment according to the invention, the control unit 220 can draw the user's attention to the fact that a message has been received by means of a vibrating signal.

After the complete calling file 300 has been transferred, the control unit 220 can, if desired, break the connection with the transmitting apparatus or return it to the so-called "knocking" state, which is the condition in which the transmitter is trying to establish a connection with the receiver, meanwhile waiting for the recipient to pick up the phone. The control unit then continues to reproduce the audio data 320 via the loudspeaker unit 240, until the user picks up the phone to conduct a

conversation or discontinues the reproduction through a command. Of advantage here is the fact that the time during which an actual communication connection exists is reduced, thus obviating needless loading of the communication network.

- 5 If desired, the user can have the audio data 320 played by the loudspeaker unit 240 during the transfer of the audio data 320, which may be advantageous if the transfer of data takes relatively long. The control unit 220 is then arranged such that upon a command from the user, for instance via the key panel 230, the input of the audio data can be
10 interrupted and the connection, if desired, can be broken or converted to a connection suitable for conducting a conversation.

The receiving control unit 220 is arranged, when receiving calling information 300, to check first on the basis of the identification data 310 whether the associated audio information 320 is already stored in the cache 15 memory 260, which can be the case, for instance, if the transmitting party has sent the same calling information to the receiving party before. If the audio information 320 is already present in the cache memory 260, the control unit 220 does not receive the audio data, but the control unit 220 feeds the audio data already stored to the loudspeaker unit 240. The 20 duration of communication is thereby reduced.

The control unit 220 is arranged upon user request to remove audio information stored in the cache memory; if desired, such erasure can take place automatically at the moment when the audio information does not need to be used anymore. By erasing the audio information, the memory 25 capacity of the telephone is optimally utilized and audio information that may be undesired by the user does not remain stored in the memory.

Although in the foregoing exemplary embodiment reference has been made to an audio memory, the invention is not limited thereto and the invention also provides a memory in which other data in digital form, such 30 as visual data and reference data, can be stored.

Although in the foregoing exemplary embodiment the telephones 100 and 200 have been described with functions for transmission and reception, respectively, the invention is not in any way limited to this embodiment. In particular, the invention envisages accommodation of the 35 transmission and reception functions in a single telephone apparatus

according to the invention, so that this telephone is capable of both transmission and reception.

In a further variant embodiment according to the invention, there is provided a central memory, which is included in a network, such as, for 5 instance, a computer, telephone or data network. According to the invention, the central memory can be implemented in any suitable manner. In a manner suitable for the purpose, a user can send a call message created by the user, with sound and/or image in digital form, via the network to the central memory; for this purpose, the user can utilize, for instance, a 10 telephone as described above, with the communication means of the telephone arranged accordingly, or a personal computer. The call message is then stored in the central memory and the user receives a unique identification code for the call message in question. This unique identification code can then, for instance, be stored in the memory of the 15 telephone apparatus of the user. The unique identification code can subsequently be incorporated into the calling information; the calling information can comprise, for instance, a hyperlink with the location of the central memory within the network and the identification code. On the basis of the unique identification code incorporated into the calling 20 information, which therefore functions as audiovisual information, the receiver, which has access to the central memory, can obtain the associated call message via the network from the central memory and, for instance, execute same in the above-described manner. To that end, the communication means of the receiving telephone can be arranged for 25 making contact with the central memory. This variant embodiment lends itself in particular for use with existing telephones, since it entails little or no claim on the hardware, and in particular on the memory capacity, of the telephone.

In a further variant embodiment of the invention, the receiver is 30 provided with an address memory in which addresses of specific users are stored. The control unit is arranged, when calling information comes in, to determine on the basis of the identity data comprised therein, whether the caller is present in the address memory. If the data of the caller are present 35 in the address memory, the control unit relays the audio information of the calling data to the loudspeaker unit. Thus, a recipient can compile a list of familiar persons to whose audio information the recipient wishes to listen.

What is thus achieved is that the recipient only gets to hear the audio information that is important to him.

In a further variant embodiment of the invention, the control unit 220 of the receiving apparatus 200 is equipped with a selection unit with 5 which the user can set the control unit 220 for handling the incoming messages in the manner desired by him. For instance, the user can elect, upon receipt of a call provided with calling information: a. to reproduce the audio information comprised in the calling information directly in the manner described above; b. to receive the calling information and to store it 10 in the cache memory, and to draw the user's attention to the stored calling information by means of non-auditory signals, such as a vibrating signal; c. to receive the call message and to store it in the cache memory without drawing the user's attention to the received information. With option c. the user can, upon command, have the control unit 220 acoustically reproduce 15 the received information in the manner described above.

Although in the example cellular telephones have been assumed, the invention is not limited to this application; the invention can also be used with telephone apparatuses which are directly connected with a public switched telephone network.

Usually, cellular telephones are provided with a computer or microprocessor which is provided with a memory with software for operating the different parts of the telephone, such as the communication device, the display, and the key panel. The invention provides a computer program that is arranged for carrying out the method according to the 20 invention when this program is executed by the computer or microprocessor of the cellular telephone. Use can then be made of the facilities already present in the telephone, such as loudspeaker, microphone and key panel. Through this embodiment of the invention, the favorable effects of the invention can be obtained by introducing a program according to the 25 invention in the memory of an existing cellular telephone. Such an adaptation of the software is simple to carry out without performing complex hardware changes on the telephone.

The invention further provides a computer program product on which, in a computer-readable form, a computer program according to the 30 invention has been provided. To that end, for instance, the computer program can be placed on a CD ROM, floppy disk, magnetic tape, optical

disk, ROM memory, or a corresponding computer-readable storage medium. Such a program according to the invention is then transferred in a manner suitable for the purpose onto an operating computer in a cellular telephone, for instance according to the Wireless Application Protocol (WAP).

CLAIMS

1. A method for placing a telephone call, comprising the step of a transmitting section of a telephone apparatus establishing a connection with a given receiving section of a telephone apparatus, characterized by the steps of
 - 5 storing audiovisual information (320, 323, 325, 328) in a memory (140) of the transmitting section, the transmitting section transferring predetermined calling information (300) comprising audiovisual information (320, 323, 325, 328) to the receiving section and
 - 10 converting the audiovisual information (320, 323, 325, 328) in the receiving section into signals perceptible by the senses.
 2. A method according to claim 1, characterized by the step of the receiving section converting the audiovisual information (320, 323, 325, 328) into signals perceptible by the senses during the transfer of the calling information (320, 323, 325, 328) by the transmitting section.
 - 15 3. A method according to claim 1, characterized by the step of the receiving section converting the audiovisual information (320, 323, 325, 328) into signals perceptible by the senses directly after the transfer of the calling information (320, 323, 325, 328) by the transmitting section.
 4. A method according to any one of the preceding claims, characterized by the steps of incorporating identity data (310) into the calling information (300), and the receiving section storing the calling information (300) in a memory (260).
 - 20 5. A method according to claim 4, characterized by the steps of the receiving section storing audiovisual information coupled to identity data in a memory, and
 - 25 the receiving section selecting, on the basis of calling information (300) transferred by the transmitting section and the identity data (310) incorporated in the calling information (300), the associated audiovisual information stored in the memory.
 - 30 6. A method according to any one of claims 4 or 5, characterized by the step of the receiving section converting the audiovisual information

(320, 323, 325, 328) into signals perceptible by the senses after a command from a user.

7. A method according to any one of the preceding claims, characterized by the steps of interrupting, upon command of a user, the conversion of the audiovisual information (320, 323, 325, 328) into signals perceptible by the senses, and clearing the connection for a conversation.
- 5 8. A method according to any one of the preceding claims, characterized by the step of the transmitting section recording audiovisual information (320, 323, 325, 328).
- 10 9. A method according to claim 8, characterized by the step of storing the recorded audiovisual information (320, 323, 325, 328) in a memory (140).
10. A method according to any one of the preceding claims, characterized by the steps of transferring audiovisual information (320, 323, 325, 328) via a network to the transmitting section, and storing the transferred audiovisual information (320, 323, 325, 328) in a memory (140).
- 15 11. A method according to any one of the preceding claims, characterized by the steps of storing audiovisual information in a central memory, and composing the calling information at least partly on the basis of audiovisual information stored in the central memory.
- 20 12. A method according to any one of the preceding claims, characterized by the step of the receiving section, after transfer of the calling information, breaking the connection and returning the connection to a knocking condition.
- 25 13. A telephone system comprising,
at least one first telephone apparatus (100) provided with at least one transmitting section, and at least one second telephone apparatus (200) provided with at least one receiving section, while the at least one transmitting section and the at least one receiving section are provided with
30 respective communication means (110, 115, 210, 215) arranged for establishing a telephone connection, characterized in that the at least one first telephone apparatus (100) is provided with an audio memory (140) containing audiovisual information and that the communication means (110, 115) of the at least one first telephone apparatus (100) are arranged
35 for transferring predetermined calling information (300) comprising at least

audiovisual information (320, 323, 325, 328) to the at least one second telephone apparatus (200).

14. A system according to claim 13, characterized in that the communication means (210, 215) of the at least one second telephone apparatus (200) are arranged for receiving calling information (300) comprising audiovisual information (320, 323, 325, 328) and that the at least one second telephone apparatus (200) is provided with reproduction means (240, 245) arranged for converting audiovisual information (320, 323, 325, 328) into signals perceptible by the senses.
- 10 15. A system according to claim 14, characterized in that the reproduction means (240, 245) are arranged for converting, during the reception of calling information, the audiovisual information comprised in the calling information into signals perceptible by the senses.
16. A system according to claim 14, characterized in that the at least 15 one second telephone apparatus (200) is provided with a memory (260) for the storage of received calling information.
17. A system according to claim 16, characterized in that the memory (260) of the at least one second telephone apparatus (200) is arranged for storing identity data comprised in the calling information.
- 20 18. A system according to any one of claims 13-17, characterized in that the at least one first telephone apparatus (100) is provided with recording means (160, 165) for recording audiovisual information.
19. A system according to claim 18, characterized in that the at least one telephone apparatus (100) is provided with a memory (140) for storing 25 recorded audiovisual information.
20. A system according to any one of claims 13-19, characterized by a central memory arranged for the storage of audiovisual information, the communication means of the respective telephone apparatuses being arranged for communicating with the central memory.
- 30 21. A telephone apparatus provided with at least transmitting means for use in a telephone system according to any one of claims 13-20.
22. A telephone apparatus provided with at least receiving means for use in a telephone system according to any one of claims 13-20.
23. A computer program with instructions arranged for carrying out a 35 method according to any one of claims 1-12.

24. A computer program product on which, in a computer-readable form, a computer program according to claim 23 is stored.

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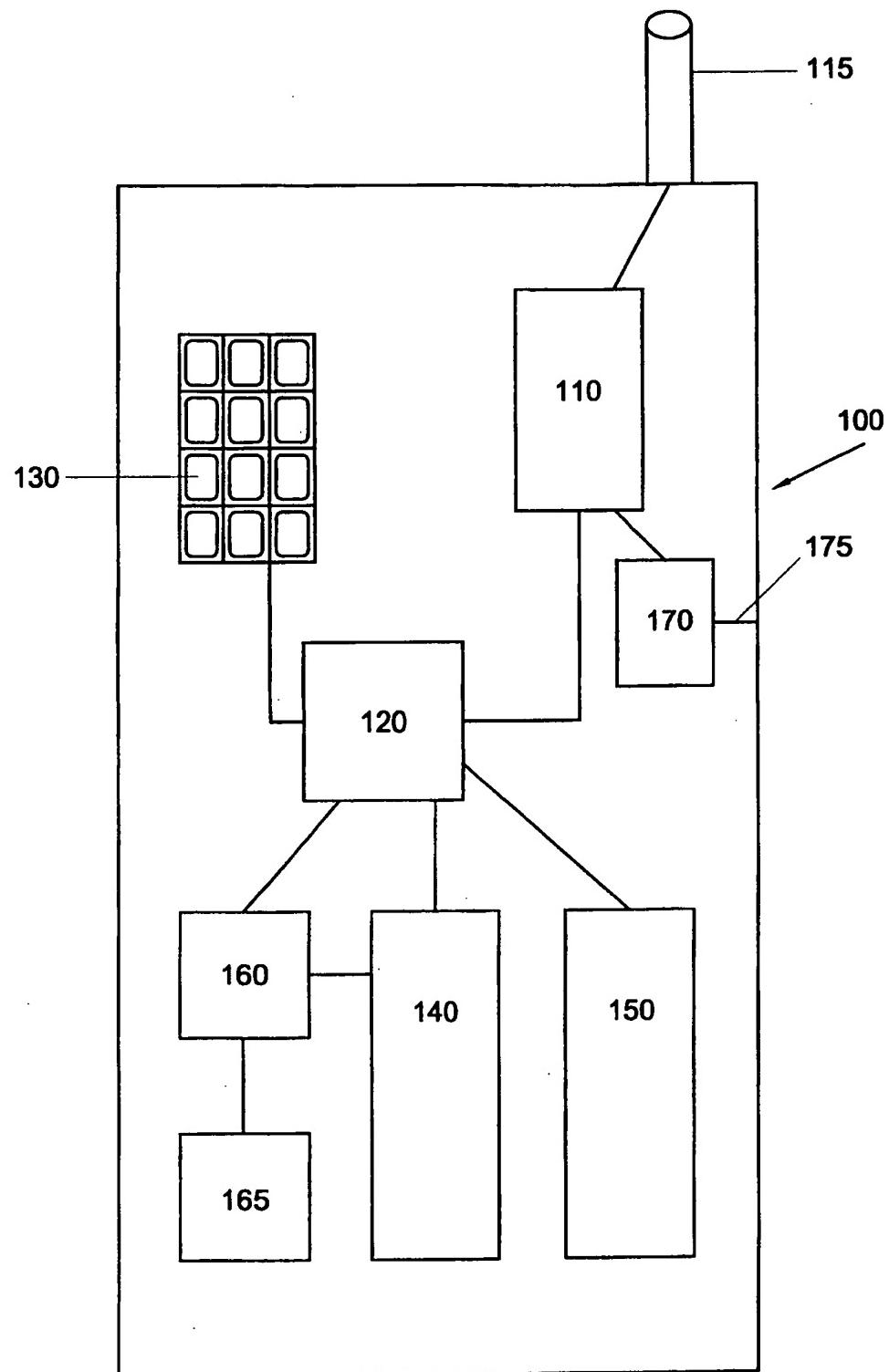


Fig. 1

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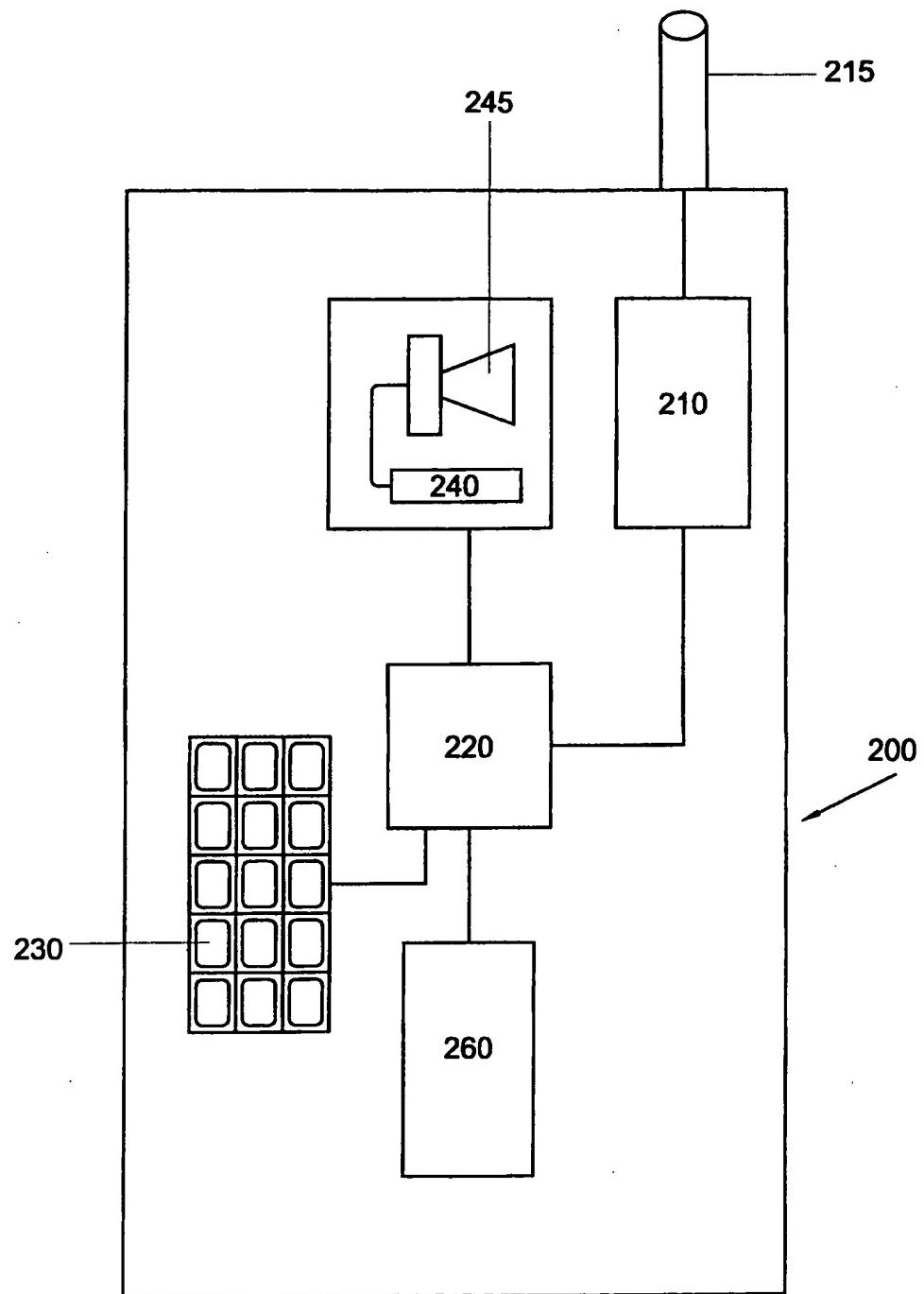


Fig. 2

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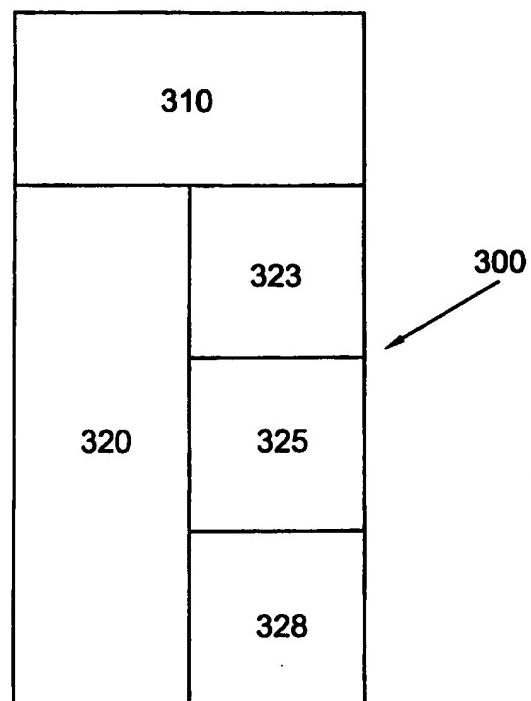


Fig. 3

INTERNATIONAL SEARCH REPORT

Int'l Application No
PCT/NL 00/00889

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H04M1/57

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04M H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 0 641 141 A (AT & T CORP) 1 March 1995 (1995-03-01) column 2, line 56 -column 3, line 19 ---	1-3, 8, 9, 13-16, 18, 19, 21-24
X	FR 2 618 281 A (MORIN FRANCOIS) 20 January 1989 (1989-01-20) page 2, line 33 -page 3, line 22 page 4, line 11 - line 14 page 4, line 30 -page 6, line 28 --- -/--	1, 2, 8, 9, 13-15, 18, 19, 21-24

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
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- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
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- *&* document member of the same patent family

Date of the actual completion of the international search

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Date of mailing of the international search report

20/04/2001

Name and mailing address of the ISA

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Baas, G

INTERNATIONAL SEARCH REPORT

Intern. Appl. No.

PCT/NL 00/00889

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 907 604 A (HSU P ROBERT) 25 May 1999 (1999-05-25) column 2, line 23 - line 25 column 5, line 11 - line 60 ---	1,4,5,8, 9,11,13, 14,16-24
X	DE 298 21 998 U (VOGL THOMAS) 25 March 1999 (1999-03-25) claims 8,10,11 ---	1,2,8,9, 13-15, 18,19, 21-24
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X	US 5 946 684 A (LUND ARNOLD M) 31 August 1999 (1999-08-31) column 5, line 19 - line 55 ---	1,11,13, 20
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INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/NL 00/00889

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